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What is claimed is:

1. An elevator safety brake pad assembly comprising:

a carbon metallic elevator safety brake pad, the carbon metallic elevator safety brake pad comprising:

a mounting surface for engaging a backing plate;

a sliding surface for engaging an elevator guide rail, the sliding surface having a burnished finish and having a relatively constant coefficient of friction when engaging and sliding along the elevator guide rail during an initial slide, and wherein the average coefficient of friction for subsequent slides, under conditions of similar load and speed, remains relatively constant; and

an elevator safety brake backing plate having a wedge-mounting surface for engaging and mounting an elevator safety wedge and a pad-mounting surface on which the carbon metallic elevator safety brake pad is mounted.

2. The elevator safety brake pad assembly of claim 1 wherein the coefficient of friction for a constant load is approximately defined by the following equation:

$$\mu = 1.258 * v^{-0.2687}$$

wherein v = the velocity of the brake pad assembly when it first engages the elevator guide rail.

3. An elevator safety braking system comprising:

an elevator brake wedge comprising:

a top surface;

a bottom surface, the bottom surface generally parallel with the top surface and located below the top surface;

an inclined surface intersecting the top surface at an obtuse angle and intersecting the bottom surface at an acute angel;

a rail-facing surface intersecting the top and bottom surfaces at approximately a right angle; and

a tab extending normally away from the rail-facing surface for absorbing shear loads from an elevator brake pad;

a brake pad backing plate, the brake pad backing plate having a pad-mounting surface for mounting a brake pad and a wedge-mounting surface for engaging the rail-facing surface of the elevator brake wedge, the brake pad backing plate mounted along the rail-facing surface of the elevator brake wedge below the tab;

a carbon metallic brake pad for engaging a steel elevator guide rail comprising:

a mounting backing surface for engaging the backing plate, and

a sliding surface for engaging an elevator guide rail, the sliding surface having a burnished finish, the sliding surface also having an approximately constant coefficient of friction when sliding against the rail during an initial slide,

wherein the coefficient of friction for subsequent slides between subsequent braking applications remains relatively constant.

4. An elevator safety brake pad assembly comprising:

an elevator brake wedge, the elevator brake wedge having a rail-facing surface;

a brake pad backing plate, the brake pad backing plate having a pad-mounting surface for mounting an elevator safety brake pad and a wedge-mounting surface that engages the elevator brake wedge along the rail-facing surface;

a carbon metallic brake pad for engaging an elevator guide rail, the carbon metallic brake pad being mounted to the backing plate and comprising a sliding surface for engaging an elevator guide rail, the sliding surface having a burnished finish.

5. The elevator brake pad assembly of claim 4, wherein the sliding surface, when engaging an elevator guide rail, has an average coefficient of friction for a fixed load during a slide approximately defined by the following equation:

$$\mu = 1.258 * v^{-0.2687}$$

wherein v = the velocity of the brake pad assembly when it first engages the elevator guide rail.

6. A carbon metallic elevator safety brake pad for engaging an elevator guide rail comprising

a mounting surface for engaging a backing plate; and

a sliding surface for engaging the elevator guide rail, the sliding surface having a shape complementary to the elevator guide rail, the sliding surface also having a burnished finish, the sliding surface further having an approximately constant coefficient of friction when sliding against the elevator guide rail during an initial slide,

wherein the coefficient of friction for subsequent slides remains relatively constant, under conditions of similar speed and loads.

7. The carbon metallic elevator safety brake pad of claim 6, wherein the burnished finish is a street car brake pad burnished finish.

8. The elevator safety brake pad of claim 6, wherein the burnished finish is a laser burnished finish.

9. The elevator safety brake pad of claim 6, wherein the coefficient of friction (μ) between the rail and the carbon metallic elevator safety brake pad is approximately defined approximately by the following equation:

$$\mu = 1.258 * v^{-0.2687}$$

for an elevator having a load of approximately 15,000 lbs,

wherein v = the velocity of the brake pad assembly when it first engages the elevator guide rail.

10. An elevator braking apparatus comprising:

a pad mounting structure having a rail-facing surface for facing an elevator rail;

a shoulder protruding from the rail-facing surface;

and a fiction pad mounted to the rail-facing surface and abutting a portion of the shoulder.

11. The elevator braking apparatus of claim 10, wherein the friction pad is manufactured from a carbon metallic friction material.

12. The elevator braking apparatus of claim 11, wherein, when the friction pad engages an elevator rail during a single slide, the coefficient of friction between the rail and the pad remains relatively constant.

13. The elevator braking apparatus of claim 12, wherein, when the friction pad engages the elevator rail for a plurality of successive slides, the friction pad has an average per slide coefficient of friction that remains relatively constant.

14. The elevator braking apparatus of claim 11, wherein the friction pad has a at a surface having a burnished finish.

15. The elevator braking apparatus of claim 14, wherein the surface has a laser burnished finish.

16. An elevator safety brake comprising:

an elevator safety brake wedge, the wedge having a pad mounting surface and a shoulder protruding from the pad mounting surface;

a friction pad, the friction pad mounted to the pad mounting surface and abutting the shoulder, wherein the friction pad has an average coefficient of friction defined approximately by the following equation:

$$\mu = 1.258 * v^{-0.2687}$$

wherein v = the velocity of the brake pad assembly when it first engages an elevator guide rail.

17. The elevator safety brake of claim 16, wherein the friction pad's coefficient of friction remains relatively constant during a single slide along the elevator guide rail.

18. The elevator safety brake of claim 17, wherein the friction pad has a relatively constant average coefficient of friction for multiple slides having similar conditions along the same guide rail.

19. The elevator safety brake of claim 18, wherein the friction pad contains carbon.

20. The elevator safety brake of claim 19, wherein the friction pad is fastened to the safety brake wedge with mechanical fasteners and wherein the shoulder is a rectangularly shaped tab having one surface that abuts the friction pad to carry part of a shear load encountered during a braking application when the friction pad engages an elevator rail.